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DECLASSIFICATION REVIEW by NIMA/DOD 3/27/00

TCS 1752/64-KH
M/EB 198/64
16 April 1964
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MEMORANDUM FOR: Chief, Ballistic Missile and Space Division, OSI

ATTENTION: [REDACTED] 25X1A

THROUGH: Chief, Requirements Branch, Reconnaissance Group, CGS

FROM: Chief, CIA/PID (NPIC)

SUBJECT: Search for HF Broadcast Stations within 100 Nautical Miles of all Missile Launch Sites in the USSR

REFERENCES: (a) Requirement C-SI-4-81,170
(b) CIA/PID Project C 496-64

1. This memorandum is an interim report in response to your requirement dated 11 March 1964, requesting the location of all HF (4-25 mc) radio broadcast stations within 100 nautical miles of all Soviet ICBM, IRBM, MRBM launch sites, missile test centers, and the Shuang-Cheng-Tzu Missile Test Center in China. For the purpose of this study all HF transmitting stations within 100 nautical miles of these sites were considered, since from photography it cannot always be determined whether a station is or is not being used for broadcasting.

25X1D

2. During the period [REDACTED] the 182 DF cuts furnished by EDL and all stations reported on your collateral list were plotted in order to eliminate those not within 100 nautical miles of a launch complex or test center. This left 47 DF cuts and all of the 16 collateral locations requiring a search within a 50 nautical mile radius for any HF stations. Because of the time limit imposed, it was decided to first make a check against those HF stations previously reported on photography and on SAC 1:200,000 target charts. The result was that HF broadcast/communication stations were found within a 50 nautical mile radius of six of the DF cuts. Five of these were within 50 nautical miles of Moscow, which due to the numerous stations within the Moscow area were not investigated in detail. The remaining DF cut contained two stations each with rhombic antenna orientations passing over the Plesetsk ICBM Launch Complex. HF broadcast/communication stations were found within a 50 nautical mile radius of nine of the 16 collateral locations. At these nine locations it was determined that HF stations contained antennas with orientations that passed over two ICBM and 5 IR/MRBM launch complexes.

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TCS 1752/64-KH
M/EB 198/64

25X1D 3. Because of the lack of correlation existing between stations previously identified on photography with the EDL DF cuts and your collateral locations, it was mutually decided to approach the problem directly; that is, to locate all HF broadcast/communication stations within 100 nautical miles of a launch complex that contains antennas with orientations passing over a launch site. This phase, begun on [REDACTED], was to be completed by [REDACTED]. The time limit imposed did not allow a scan of photography covering an area within a 100 nautical mile radius of the 18 ICBM complexes, 83 IR/MRBM complexes, and five missile test centers. It was therefore decided to scan on photography a 100 nautical mile radius of the five missile test centers and re-analyze all HF stations previously identified on photography.

25X1D 4. A scan of an area within a 100 nautical mile radius of the missile test centers at Tyura Tam, Kapustin Yar/Vladimirovka, Sary Shagan, Emba, and Shuang-Cheng-Tzu did not reveal any HF stations other than those located at the rangehead proper and involved in point to point communications. An HF station is located within 100 nautical miles of the Lenoska Cruise Missile Test Site (64-39N 39-10E). Details are as follows:

64-15N 40-37E

Orientation to test site - [REDACTED] 25X1D

Distance to test site -

Station consists of 10 rhombics

One day and night pair of rhombics at 310 degrees - frequency undetermined

5. A re-analysis of all HF stations previously identified on photography within 100 nautical miles of ICBM complexes containing antennas with orientations passing over launch sites revealed the following:

- A. Drovyanaya - None reported
- B. Gladkaya - None reported
- C. Itatka - None reported
- D. Kostroma - None reported
- E. Kozelsk - None reported
- F. Novosibirsk

54-55N 82-51E

Orientation to launch complex - 5 to 25 degrees

Distance to launch complex - 24 to 28 nautical miles

Station contains 37 curtain arrays and 4 rhombics

1 curtain array at 175/355 degrees (if 4 or 8 bay) 7 or 14 mc

1 curtain array at 175/355 degrees (if 4 or 8 bay) 11.4 or 22.8 mc

1 rhombic at 000/180 degrees 9 mc

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TCS 1752/64-KH
M/EB 198/64

G. Olovyannaya

A probable HF station is located at 52-12N 117-31E but
specific antenna patterns cannot be identified.

H. Omsk - None reported

I. Perm - None reported

J. Plesetsk

(1) 64-22N 41-14E

Orientation to launch complex - [REDACTED] 25X1D

Distance to launch complex - 78 to 93 nautical miles

Station consists of 8 rhombics, 7 V-antennas,

5 horizontal dipoles

1 rhombic at [REDACTED] - frequency undetermined

1 rhombic at [REDACTED] - frequency undetermined

(2) 64-15N 40-37E

Orientation to launch complex - [REDACTED] 25X1D

Distance to launch complex - 72 to 85 nautical miles

Station consists of 10 rhombics

6 rhombics at [REDACTED] - frequency undetermined

K. Shadrinsk - None reported

L. Svobodnyy - None reported

M. Teykovo

(1) 55-35N 39-07E

Orientation to launch complex - [REDACTED] 25X1D

Distance to launch complex - 78 to 98 nautical miles

Station consists of numerous rhombics

Several rhombics pass over complex - frequency undetermined

(2) 56-03N 37-55E

Orientation to launch complex - [REDACTED] 25X1D

Distance to launch complex - 83 to 107 nautical miles

Station consists of rhombics and six curtain arrays

Several rhombics pass over complex - frequency undetermined

3 curtain arrays at 70/250 degrees (if 4 or 8 bay) 5.9 or 10.5

1 curtain array at [REDACTED] (if 4 or 8 bay) 5.9 or 10.5

(3) 55-32N 38-04E

Orientation to launch complex - [REDACTED] 25X1D

Distance to launch complex - 100 to 123 nautical miles

Station consists of numerous rhombics

Several rhombics pass over launch complex - frequency undetermined

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512291

TOP SECRET RUFF

SUBJECT: Search for HF Broadcast Stations within 100
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TCS 1752/64-KH
M/EB 198/64

N. Tyumen - None reported

O. Verkhnyaya Salda

(1) 56-55N 60-41E

Orientation to launch complex - [REDACTED]

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Distance to launch complex - 75 nautical miles

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Station consists of 40 curtain arrays and 5 rhombics

One rhombic at [REDACTED] - frequency 10 mc

P. Yedrovo - None reported

Q. Yoshkar-Ola - None reported

R. Yurya - None reported

25X1D

A re-analysis of all large HF stations previously identified on photo-
graphy within 100 nautical miles of IR/MRBM complexes containing antennas with
orientations passing over launch complexes should be completed prior to
[REDACTED]

6. The following photo analysis remains to be done after [REDACTED]: 25X1D

a. Scan photography for HF stations within a 100 nautical mile
radius of all ICBM and IR/MRBM launch complexes.

b. Mensuration to obtain frequency of those specific antennas
of interest at previously reported stations.

7. For the purposes of this study the following parameters were used:

a. Orientation. Horizontal radiation beam of pattern 15 degrees on
each side of a line perpendicular to a line projected between two
towers supporting a curtain array and on each side of a line projected
along the major axis of a rhombic antenna.

b. Frequency. Curtain array - assumption of 4 and 8 bay array with
a total of one-half wave distance between towers utilized for
support wires. Rhombic - assumption of 65 4/1 mc=3936/leg of rhombic.

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8. The photo analysts on this project are [REDACTED]
[REDACTED] who may be contacted on extension 2421 should you have any
further questions concerning this project.

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9. This project is not considered to be complete.

[REDACTED] 25X1A

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